

HPSC3036 Governing Emerging Technologies

Course Syllabus

2012-13 session | Dr Jack Stilgoe | j.stilgoe@ucl.ac.uk

Course Information

This course goes inside technology to discuss its political and ethical dimensions. Technologies shape our future in powerful and largely unaccountable ways. Are they inevitable, or can we control the technologies that we get, anticipate their implications, prevent hazards and share their benefits? Why do we have iPads and space shuttles but we don't all drive electric cars and have clean drinking water in the developing world? Were the Fukushima nuclear meltdown and the financial crisis just accidents? What could regulators have done to prevent them? As science introduces new risks and ethical dilemmas, what should governments do to control research, publication, patenting and innovation? The course will teach students to think and write clearly and critically about technology. It will be assessed through an essay and a series of short blog-posts.

Basic course information

Course website:	http://www.ucl.ac.uk/sts/staff/stilgoe/3036
Moodle Web site:	https://moodle.ucl.ac.uk/course/view.php?id=18603
Assessment:	Two pieces of coursework, 50% each. The first is a blog, comprising three posts (max 3,000 words). The second is an essay (3,000 words).
Timetable:	www.ucl.ac.uk/sts/hpsc
Prerequisites:	No pre-requisites. Course is designed for 3 rd year students
Required texts:	No required texts for the course overall, but particular readings are required for each week's seminar
Course tutor:	Jack Stilgoe
Contact:	mailto:j.stilgoe@ucl.ac.uk t: 020 7679 [extension tbc]
Web:	www.ucl.ac.uk/sts/staff/stilgoe
Office location:	22 Gordon Square, Room 2.4
Office hours:	Wednesday, 12-1pm Thursday, 2-3pm

Schedule

UCL Week	Topic	Date	Activity
20	Controlling innovation	1 st Oct 2012	Essential reading for each seminar in list below
21	Geoengineering: The ultimate techno-fix?	8 th Oct 2012	
22	The politics of technology	15 th Oct 2012	
23	Will genetic modification feed the world?	22 nd Oct 2012	
24	Risks, accidents and precaution	29 th Oct 2012	
25	Reading Week		
26	Nanotechnology and public engagement	12 th Nov 2012	
27	Futures, imaginaries and expectations	19 th Nov 2012	
28	Responsible innovation	26 th Nov 2012	
29	Human enhancement	3 rd Dec 2012	
30	Science and social responsibility (final essay due)	10 th Dec 2012 13 th Dec 2012	

Assessments

Summary

	Description	Deadline	Word limit
Blog posts	Blog post one Blog post two Blog post three (due date for final submission of all three blog posts)	11.59 pm, Fri 18-Oct 11.59 pm, Fri 2-Nov 11.59 pm, Fri 23-Nov	Total 3,000
Essay	See titles below	11.59pm Thurs 13-Dec	3,000

Assignments

Essays must be submitted via Moodle. Blog posts should ideally be published online, where they can be commented upon by others. If students would prefer for them to remain private, they can be emailed to me (Jack Stilgoe). Blog posts should be fully hyperlinked. We will discuss in class

what makes for a good blog post, and students will be supported in their writing. Students will in general be expected to demonstrate that they have understood the ideas and approaches of the course and are able to apply them in a readable way to topical and emerging issues. They will be expected to research issues online and demonstrate this with hyperlinks. Students will be assessed on style as well as substance. The assumption will be that students' blogging skills develop over the course of the term, with help from their colleagues.

Essay Titles

1. Given that we can't predict where technology will take us, is it futile to try to govern it?
2. Discuss Michael Polanyi's claim that "You can kill or mutilate the advance of science, you cannot shape it?"
3. Can GM crops feed the world?
4. In 1959, C.P. Snow predicted that, because science was so powerful, we would eradicate the global divide between rich and poor within half a century. What went wrong?
5. In 2011, David Attenborough called geoengineering 'fascist'. What did he mean?
6. What can we learn from nuclear accidents and the financial crisis? Can we do anything to stop such things in the future?
7. "Scientists' responsibilities start and end in the lab". Discuss.
(Students are free to suggest their own alternative essay topics, but they must be agreed with me)

In order to be deemed 'complete' on this module students must attempt all three blog posts and the essay

Criteria for assessment

The departmental marking guidelines for individual items of assessment can be found in the STS Student Handbook.

Blog posts will be discussed as and when they are published. I would hope that students agree for them to be discussed within class so that they can be improved and updated. All three blog posts will then be assessed and marked together.

Aims & objectives

The aims of this course are to get students to think and write critically about the directions of science and technology, taking into account social, political, economic and ethical questions. By the end of this course, students will be familiar with a number of case studies of emerging technologies and they will be able to apply the lessons from these to other areas of science and technology. The idea is to study concepts and cases in lectures, discuss them in seminars and apply them to new areas at the frontiers of science and innovation through students' own writing. In addition to assessment via essay, the course also asks students to write accessibly and publicly, via a blog, about new technologies.

Reading list

These are essential readings for class discussions. The assigned readings are not arduous. Students will therefore be expected to explore additional material around the topics of the course and use these ideas in class discussions.

Additional readings for discussion and essays will be put on Moodle

1. Controlling innovation

Bill Joy, 2000, 'Why the future doesn't need us', Wired magazine, www.wired.com/wired/archive/8.04/joy.html

David Collingridge, 1980, The Social Control of Technology, Open University Press, Chapter 1, pp. 13-21

Dr Seuss, 1971, The Lorax (the complete text is online, e.g. <http://clubs.cob.calpoly.edu/~cmiller/poetry/The%20Lorax.htm>, but you really should buy a copy, read it, then send it to a child).

2. Geoengineering: The ultimate techno-fix?

Alan Robock, 2008, '20 reasons why geoengineering may be a bad idea', Bulletin of Atomic Scientists, 64, No. 2, 14-18, 59, available at http://www.thebulletin.org/files/064002006_0.pdf

Dan Sarewitz and Richard Nelson, 2008, 'Three rules for technological fixes', Nature, 2008, <http://thebreakthrough.org/blog/Sarewitz-Nature%20tech%20fix.pdf>

3. The politics of innovation

Eric von Hippel, 2005, Democratizing innovation, MIT University Press, chapter 1, available here <http://web.mit.edu/evhippel/www/democ1.htm>

4. Will genetic modification feed the world?

Sheila Jasanoff, 2007, 'Let them eat cake': GM foods and the democratic imagination. In: Science and Citizens: Globalization and the challenge of Engagement, Leach, M, Scoones, I and Wynne, B (eds), available at <http://www.drc-citizenship.org/system/assets/1052734486/original/1052734486-jasanoff.2005-let.pdf?1289503840>

5. Risks, accidents and precaution

Charles Perrow, 1981, 'Normal Accident at Three Mile Island', *Society*, Volume 18, Number 5, 17-26, <http://www.penelopeironstone.com/Perrow.pdf>

(if you have time, see also Charles Perrow's new preface to the paperback edition of *The Next Catastrophe: Reducing our Vulnerabilities to Natural, Industrial and Terrorist disasters*. This should be readable on the Amazon web site if you 'click to look inside' http://www.amazon.com/The-Next-Catastrophe-Vulnerabilities-Industrial/dp/0691150168/ref=tmm_pap_title_0)

6. Nanotechnology and public engagement

Rob Doubleday, 2007, 'The laboratory revisited: academic science and the responsible governance of nanotechnology' *NanoEthics*, 1(2): 167-176. doi:10.1007/s11569-007-0017-4 <http://www.springerlink.com/content/2417218u44712564/fulltext.pdf>

7. Futures, imaginaries and expectations

Mike Fortun, 2005, 'For An Ethics of Promising, Or, A Few Kind Words About James Watson.' *New Genetics and Society* 24/2:157-173 <http://www.tandfonline.com/doi/abs/10.1080/14636770500184792>

8. Responsible innovation

Bruno Latour, 2011, 'Love your monsters' *The Breakthrough journal*. Reproduced here <http://convozine.com/monster-theory/31585>

9. Human enhancement

Michael Sandel, 2004, The case against perfection, What's wrong with designer children, bionic athletes and genetic engineering, *The Atlantic Monthly*, April 2004, <http://www.theatlantic.com/past/docs/issues/2004/04/sandel.htm>

10. Science and social responsibility

Michael Rogers, 1975, The Pandora's Box Congress, *Rolling Stone magazine*, June 19th 1975 <http://climateresponsefund.org/images/Conference/rollingstone1975.pdf> (a contemporary account of the original Asilomar conference on recombinant DNA)

Course expectations

In addition to submitting assessed material, students are expected to attend all lectures and seminars. They are expected to have read the essential reading before each seminar and be willing to discuss the readings and the lecture. Students are expected to conduct online research into areas of new technology.

Important policy information

Below are listed some important points of policy. Further details of all these policies can be found in the STS Student Handbook www.ucl.ac.uk/sts/handbook

Late submission of coursework

Penalties for late coursework submission are as follows:

- loss of 5 marks for work submitted less than 24 hours late
- loss of 15 marks for work submitted between 1 and 7 days late
- loss of all marks (i.e. work is graded 0) if submitted more than 7 days late

These rules are statutory and non-negotiable.

Coursework word limits

Penalties for over-length coursework are as follows:

- Assessed work should not be more than 10% longer than the prescribed word count. Assessed work with a stated word count above this maximum cannot be accepted for submission, but will be immediately returned to the student with instructions to reduce the word length. The work may then be resubmitted, except insofar as penalties for late submission may apply.
- If submitted work is subsequently found to have an inaccurately stated word count, and to exceed the upper word limit by at least 10% and by less than 20%, the mark will be reduced by ten percentage marks, subject to a minimum mark of a minimum pass assuming that the work merited a pass.
- For work which exceeds the upper word limit by 20% or more, a mark of zero will be recorded.
- Footnotes and endnotes **do** count as part of the word limit
- Bibliography, tables, pictures and graphs **do not** count as part of the word limit.

Extensions

If unforeseeable circumstances prevent the completion of a piece of coursework, students may request an extension to the set deadline. Please consult the STS Student Handbook for further guidance on acceptable grounds for requesting an extension. Extensions must be negotiated in advance with the course tutor. Students to whom STS is parent department may also request an extension from their Personal Tutor. No extension is considered official without written approval.

The request for extension form can be found at: www.ucl.ac.uk/sts/study

Plagiarism

The *UCL Student Handbook* defines plagiarism as “the presentation of another person’s thoughts or words or artefacts or software as though they were [your] own”. Students are expected to know the College and Department policies in detail and to avoid even the appearance of inappropriate behaviour. In the first demonstrated instance of plagiarism or other irregularities in this course, students normally will receive a 0 F for the course and will be referred to the department and College officials for further action. All course work is subject to scrutiny against past papers and other materials for irregularities. Electronic and other checks will be conducted; see the *STS student handbook* for additional information.

Attendance

Regular attendance is mandatory.

Requirements to complete modules

Students are required to be ‘complete’ in all modules. Normally all assignments must be attempted in order for students to be considered complete. This is different from ‘passing’ a module which requires a minimum overall module mark of 40%.

Assessment and additional examiners

Assessed materials are marked by the course tutors. These provisional marks will be distributed to students at the first opportunity. To ensure fairness, materials subsequently are scrutinised by a second examiner within the Department, and a consensus is reached on these separate assessments. All assessed materials and the consensus marks are made available for scrutiny by an examiner external to UCL. Marks are considered final only after the Board of Examiners for Science and Technology Studies has approved them in their annual meeting near the close of Term three.

Disputed marks

Students must endeavour to discuss any grievances over marks informally with the course tutor in the first instance. If informal discussion fails to resolve the matter satisfactorily and there appears to be genuine and substantive grounds for appeal, the student should submit a written explanation of their grievance to the chair of the board of examiners. A final formal written appeal can be made to the College Registrar.

Mechanisms for student feedback

Students have a variety of means for commenting on the module and module tutor. These include written module evaluations at the end of term, regular lecture assessments offered by the module tutor, and in-session opportunities. Students are welcome to bring comments and criticisms to the module tutor in the first instance, by anonymous note if necessary, then to their personal tutor or the STS undergraduate tutor. The department schedules regular meetings of the Undergraduate Student Staff Consultative Committee to which all students are invited.